Claims

1. An optical refractive index-modifying polymer composition comprising as a main component a polymer (A) which is a polymer of monomers including as an essential component an acrylic vinyl monomer represented by the following formula (1):

$$CH_2=C(R^1)-C(=O)O-R^2=CH_2 \quad \cdots(1)$$

wherein R^1 represents a hydrogen atom or a methyl group, R^2 represents a saturated or unsaturated hydrocarbon group having 1 to 20 carbon atoms, and the molecule may contain a hetero atom or a halogen atom,

wherein the polymer (A) contains a remaining radical-polymerizable side-chain vinyl group in the molecule, and the composition comprises a thermally curable polymer (B) in an amount of 5 to 60 parts by weight per 100 parts by weight of the polymer (A).

2. The optical refractive index-modifying polymer composition according to claim 1, wherein an increase in refractive index (Δn) before and after irradiation is 0.005 or more when the composition is irradiated with a light in an ultraviolet region in an integrated light quantity of 10 J/cm^2 or less.

3. The optical refractive index-modifying polymer composition according to claim 1 or 2, wherein a

difference (Y-X) between refractive index (X) after modulating refractive index upon irradiation and further thermally curing the thermally curable polymer (B) upon heating at a temperature equal to or higher than the curing temperature of the thermally curable polymer (B) and refractive index (Y) when the composition is subsequently irradiated with a light in an ultraviolet region in an integrated light quantity of 1 J/cm^2 or less, is 0.003 or less.

4. The optical refractive index-modifying polymer composition according to any one of claims 1 to 3, wherein tacticity of the polymer (A) is 70% or more as syndiotacticity (rr).

5. The optical refractive index-modifying polymer composition according to any one of claims 1 to 4, wherein the thermally curable polymer (B) is a thermally curable polymer having at least two epoxy groups in the molecule.

6. The optical refractive index-modifying polymer composition according to claim 5, which contains the thermally curable polymer (B) in an amount of 5 to 35 parts by weight per 100 parts by weight of the polymer (A).

7. The optical refractive index-modifying polymer composition according to any one of claims 1 to 6,

wherein the curing temperature of the thermally curable polymer (B) is 150°C or lower.

8. The optical refractive index-modifying polymer composition according to any one of claims 1 to 7, which contains at least one selected from a photoinitiator, a sensitizer, a chain transfer agent, and a thermally acid-generating agent.

9. A hologram recording material comprising the optical refractive index-modifying polymer composition according to any one of claims 1 to 8.

10. A method of controlling refractive index comprising modulating refractive index upon irradiating the optical refractive index-modifying polymer composition according to any one of claims 1 to 8 with a light and subsequently thermally curing the thermally curable polymer (B) upon heating at a temperature equal to or higher than the curing temperature of the thermally curable polymer (B).